

**MINUTES OF THE SPECIAL MEETING OF THE  
CITY COUNCIL OF THE CITY OF MOUNTAIN BROOK  
MAY 2, 2023**

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[As a convenience, members of the public were invited to listen and observe in the public meeting by Internet video conference. There were no virtual attendees at the meeting.]

The City Council of the City of Mountain Brook, Alabama met in person at 5:30 p.m. on the 2nd day of May, 2023 (others were invited to listen to the meeting by way of Internet video conference—no one did). Council President Virginia Smith called the meeting to order and the roll was called with the following results:

Present: Virginia Smith, Council President  
William S. Pritchard III, Council President Pro Tempore  
Gerald A. Garner  
Lloyd C. Shelton  
Graham L. Smith

Absent: Stewart Welch III, Mayor

Also present were City Attorney Whit Colvin, City Manager Sam Gaston, and Acting City Clerk Steven Boone.

Council President Smith stated that a quorum was present and that the meeting was open.

**1. RICHMAR DRIVE AND MOUNTAIN AVENUE DRAINAGE DISCUSSION**

**[See also the consultants' summary report (Appendix 1) and summary report with pictures submitted by attendee Frank Long of 110 Richmar Drive (Appendix 2)]**

Walter Schoel with Schoel Engineering (engineering consultant):

- Has been aware of the drainage issues in this area for over 20 years and has inspected the area before
- There have been several significant rain events in the City over the past couple of years
- Introduced Mark Simpson, lead engineer on the most recent study

Mark Simpson with Schoel Engineering:

- This issue and study have been discussed on a couple of occasions and he will not be sharing any new information tonight
- The uncollected water in Area I (depicted in red of Appendix 1) ultimately makes its way to the open channel before entering a 48 inch pipe that runs along Mountain Lane/Richmar Drive (Area 2 depicted in green of Appendix 1) and then on through Area 3 (blue) before entering the storm water detention system at the Junior High School.
- Has observed that the open channel is overgrown quite a bit and has some embankment issues where concrete, blocks and rubble have been installed for stabilization
- The lots on the left side of the channel are kind of high and in some areas the embankment is starting to fail
- Studied what could be done to collect the water and move it into the open channel (Area 1)
- The electrical substation happens to be located in an area where a lot of water flows into the area but is not considered part of the drainage issues
- The installation of inlets and pipe to discharge the collected water into the open channel will improve conditions somewhat without adversely impacting downstream

- A lot of water comes down the ally and has nowhere to go but jump the road or move down through Mr. Cleague's yard
- If the City moves forward with installing the pipe, some work will need to be done to stabilize the channel bank to prepare it to receive the water.
- Downstream is not impacted as the same volume and timing of water will hit the channel—it will simply do so by way of the pipe as opposed to over the road and through the yards (6:47)
- There is a sanitary sewer located in the channel which limits what can be done to increase the capacity of the channel
- Thinks that the channel should be widened and improved for stabilization purposes
- The channel is eroding and starting to encroach on a couple of driveways
- Increasing the channel capacity will yield some minor improvements with respect to the drainage
- At the same time, some improvements can be made at the opening of the 48 inch pipe to make it more efficient
- The 48 inch pipe located in Area 2 is under-sized
- This pipe was not looked at by itself. Rather the model was extended from Mountain Brook Parkway up beyond Area 1.
- This study was much more extensive than any done previously
- Making the pipe larger resulted in downstream effects that cannot be ignored.
- The open channel (Area 3) would have to be enlarged to accommodate the increased flow which in turn would require additional improvements along Overbrook Road. Based on the model, the benefits that could be achieved from the Area 3 and downstream improvements in relation to the cost made the project impractical. This plan was abandoned due to the potential adverse impacts downstream. (13:12)
- There is an area along Richmar where the lots are just low. Installing berms along the front of those lots could help keep the water with the roadway.
- Regarding questions raised last meeting about the residential lot (116 Hillsdale Road) that was considered for a detention system but later abandoned, the lot was considered extensively
- One of the challenges is there is a sanitary sewer running through the lot which limited the overall volume of water that could potentially be stored. The only usable area was on either side of the sanitary sewer line.
- Another challenge was getting the water from the existing detention pond to the new pond. The natural flow of water is such that it must move into the existing detention pond before being moved upstream to the Hillsdale lot. Had the City been able to acquire property on the other side of Hillsdale Road, then the water could have entered the new detention pond before the existing one at the Junior High School.
- The estimated cost of the project was \$3—\$5 million with very little benefit. Furthermore, a significant amount of rock has been discovered in the area likely making these costs estimates low.

Council member Pritchard restating his understanding of the consultant's report:

- Basically, Richmar Drive serves as a conduit to move the water through the neighborhood before entering the Junior High School detention pond and drainage pipe to which Simpson affirmed Pritchard's understanding.

Frank Long of 110 Richmar Drive (19:53):

- Is hearing that Richmar will continue to flood whenever The Cut overtops
- While another inch or two of height to the channel may be added but flooding will continue
- These floods occurred twice over a 13-month period
- Views street flooding as a health and safety hazard
- Does not consider installing berms along a few properties to be a viable solution

Pritchard:

- Shares Long's concerns
- The dilemma is the downstream impacts of more substantial improvements

Ann Pringle of 101 Richmar Drive:

- Recalls from an earlier discussion that the then planned improvements to the detention existing pond would increase capacity by 50% and be sufficient to alleviate flooding in Areas 1, 2 and 3

Simpson:

- Does not recall any prior statements suggesting a 50% increase in storage capacity
- Estimates that the detention pond capacity has been increased by about 10%

Mr. Pringle:

- Recalls urging the City to delay selling the Hillsdale property until the study is concluded and being told that all upstream impacts can be addressed without the Hillsdale property

Schoel does not recall such comments being made:

- The incremental changes to the existing detention pond could never accommodate significant runoff from upstream
- Upstream had not previously been modeled

Council member Graham Smith:

- There were two major storm events in close proximity in 2021 that overwhelmed drainage infrastructure throughout the region

Schoel:

- Those events resulted in multiple dam failures and a death
- Both were multi-hundred year storm events

Mindy Keller of 301 Overbrook Road:

- The storm events are not the story
- The 2020 improvements to the detention pond are what caused her house to flood during those events (28:28)

In response to an inquiry by Mr. Pringle, Simpson stated that the pipe overtops during 1-year events which Pringle says illustrates that it is not Biblical events that results in area flooding but that such events are commonplace.

Simpson:

- Storm water system designs generally range from 10 to 50-year events depending on each community's building regulations

Tyler Buck of 24 Richmar Drive:

- Why would you not fix the problem at the source (Richmar Drive and the Cut) and then move downstream to mitigate resulting issues?

Simpson:

- It is optimal to manage storm water where it lands
- The issue is identifying where that begins
- With respect to area in question, the drainage basin spans about 80 acres
- You cannot start fixes upstream without taking into consideration downstream impacts

Council President Smith:

- Flooding along Mountain Brook Parkway is not simply from runoff coming from above the Junior High School but also further up river as far as Trussville
- Sometimes flooding from these areas arrives at different times too

Pritchard:

- The City has also learned through these studies that some of the flooding that impacts Canterbury United Methodist is not from above the Junior High School but backing up from Mountain Brook Parkway

Brad Cleague of 26 Montevallo Lane:

- It appears that the bottleneck occurs at The Cut
- Water rises to the top of the pipe frequently
- The hard fast rain events are the more worrisome
- Increasing capacity will not help the situation, there is too much water
- It seems that another bottleneck occurs where the water exiting 48 inch pipe is picked back up in the 60 inch pipe located in Area 3

Mitch Kessler of 3502 Mountain Lane (36:52):

- At the substation, there is gap between a discharge pipe and another downstream pipe
- Walked the ally recently and observed numerous clogs

[Someone else interjected that there is an underground electrical line located in that area that complicates remediation efforts]

Frank Long:

- It seems that the water moving through The Cut will eventually get to where it is going now

Keller:

- My house is flooding now with the current condition

Simpson:

- Improvements to the detention pond going on now are to accommodate the improvements going on at the Junior High School now (to mitigate any potential downstream impacts of the current project)

Long:

- Continuing his earlier statement: How is piping the water in Area 1 any different that the water flowing over-ground now?

Simpson:

- With respect to piping in Area 1, the volume of water getting to Overbrook Road will not be much different
- If pipes were installed along Areas 1 through 3, the rate at which the volume of water reached Overbrook Road would be much faster and therefore have adverse implications

Courtland Davis of 22 Montevallo Lane (48:19):

- Over the past 10 years, you can see the slope of area yards changing due to erosion

Jeff Pittard of 100 Richmar Drive:

- Has a berm in front of his house and has not flooded

- Can a gutter or pipe be installed along west side of the street to help keep water out of the yards?

Simpson:

- Curb and gutter will have minimal impact
- Several property owners would benefit from installing berms such as yours
- The only way to get the water out by way of pipe is to pipe all the way down the road with installed inlets, very expensive, with minimal benefit to only a few homes

Frank Long:

- Views their neighborhood serving as a detention pond
- The current infrastructure did not have to be constructed
- The ditch which lies on City property is causing property damage
- The City owes a duty of care to the people that live in that neighborhood
- Feels that ignoring the 48 inch bottleneck is negligent

Todd Jenkins of 23 Richmar Road:

- His yard is eroding too
- Many children walk this path daily going to and from school and often play in the ditch and fears for their safety
- This should be looked at as a 10-year plan and fix the problem all the way to Mountain Brook Parkway

Pringle:

- Wouldn't a 5 foot by 8 foot box culvert be of benefit
- Anyone that falls into the ditch during a storm will be sucked into the pipe

Simpson:

- Cannot answer that question regarding the box culvert

Council Garner:

- The City Council does take into consideration many factors including safety and impacts up and down stream
- Appreciates the open dialogue as the Council is seeking to find the best solution to the problem

Pritchard:

- Regarding safety, is your concern that children are playing in the ditch during a flood?

The Cleague's:

- Yes, children play in the ditch all the time
- They try to keep their children out of the ditch
- They do not send their kids into the ditch to play
- Observes many children playing in the ditch
- Feels that the whirlpool of water entering the 48 inch pipe would be lessened if enlarged

Pritchard:

- Fencing the open ditch would only serve catch debris washing toward the pipe

Schoel:

- The proposed improvements will have some beneficial impacts without adversely impacting downstream
- Endorses what Simpson has presented

- Weather is cyclical. There will be a 15-year period where there are no floods. Then there will be periods where storms are more prevalent. The maxim of hydrology is that wet weather follows wet weather and dry weather follows dry weather. If a 100-year event occurs today, you are probably more likely to have another one tomorrow than 100 years from now. (1:07:24)

Pittard:

- Is raising the ditch wall still under consideration?

Simpson:

- In theory yes, but that could also have adverse unintended consequences
- Should the City elect to move forward, then further study will be warranted

Mitch Kessler:

- Is a raised sidewalk a possibility along the ditch?

Simpson responded potentially.

Schoel:

- Little can be done to slow the speed of the runoff
- Improving the inlet of the pipe will maximize flow through the pipe which will help move water through the area better
- We also want the water to get into the ditch better

Kessler:

- The improved detention pond was supposed to be able to handle the water
- What has changed?
- Feels that nothing will be done

Pritchard:

- That is an incorrect statement
- Something will be done

Pringle:

- How will improvements along the street impact wheelchair access?

Simpson:

- The spacers cause normal, everyday rain to push into the street
- During heavy events, these spacers make no significant difference

Regarding a question from the audience about the suggested berms, Pritchard and Graham Smith both stated that the some residents should install berms in front of their homes. (1:19:54)

From the audience, one of the ladies present stated that residents being asked to spend money on berms is absurd.

Keller:

- What exactly is the City protecting—not the residents, only the Junior High School

Gardner admonished Keller for questioning the City Council's motives and invited her to speak afterward if she wished to discuss the City's motives further.

President Smith:

- It is the City's goal to improve the current conditions
- Whatever actions the City elects to undertake, not all area residents will be happy
- Feels that the meeting was productive and provided the City Council with useful information as it continues to study the alternatives
- The City Council has much to consider and with that she closed the meeting.

## 2. CERTIFICATION

I, Heather Richards, City Clerk of the City of Mountain Brook, Alabama, certify the above is a true and correct transcript of the special meeting of the City Council of the City of Mountain Brook, Alabama held at City Hall, Council Chamber (Room A-108) on May 2nd, 2023, and that the meeting was duly called and held in all respects in accordance with the laws of the State of Alabama and bylaws of the City and that a quorum was present.

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City Clerk Approved by  
City Council June 12, 2023

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The Cut-Drainage Study

November 20, 2022

Revised: February 9, 2023

Revised: April 4, 2023

The area near the intersection of Richmar Drive and Mountain Lane, locally known as "The Cut", is the focus of this study. For clarity, the study area has been divided into three areas, as described below. Development of the study has utilized recent field survey data, pictures and accounts from affected citizens in the area, and multiple site visits.

The hydrologic modeling used for this study leveraged and extended the previous modeling in the downstream-areas, allowing for the-evaluation of downstream effects.-This study considers the planned stormwater Improvements in and around the Junior High campus to be complete and in-place.

Area 1-Mountain Lane and Montevallo Lane Intersection. "The Cut" Open Channel Area

Flood water has been observed in the intersection of Mountain Ln and Montevallo Ln, at the immediate upstream end of The Cut. Overland floodwater has also been observed crossing the front lawn of 26 Montevallo Ln as it flows to The Cut.

Field survey shows a 48" pipe entering from the northeast across Mountain Ln, and at least three more smaller pipes entering The Cut and originating from just south of the intersection.

The drainage area to this point is approximately 77 acres: 56 acres originating in the direction of the 48" pipe, and the remaining 21 acres from south of Mountain Lane.

A lack of surface collection inlets and associated piping is believed to be the primary cause of the excess surface water in this area.

A schematic plan has been developed to capture the surface water on Mountain Ln and direct it through a series of new pipes to the open channel in The Cut. A dependent improvement to the open channel in The Cut will be needed to accommodate the improvements. This work would include clearing the existing vegetation, performing grading, and some minor structural modifications to the headwall of the 48" pipe that drains the channel.

The channel occupies a city alley way that contains available area that could allow the channel volume to be expanded. This additional volume, in combination with some improvements to the headwall of the 48" pipe would provide some increase in overall capacity of the system for the smaller, more frequent storms. However, this is not intended to mitigate the flooding that can result from larger events.

Estimated Probable Construction Cost \$ 620,000

Area 2- Richmar Drive and Mountain Lane "The Cut" and Area 3- Open Channel Between Lots on Richmar Drive and Hilldale Road

Prior work in this study identified the 48" pipe in The Cut channel as deficient. The improvement presented included replacing the pipe with a larger one, depending on certain site conditions. These improvements were deemed not viable for the reasons outlined below:

- The receiving channel between the lots on Richmar Dr and Hilldale Road would require significant upgrades to mitigate the expected increases in peak flow and volume that would occur during a peak event. However, general maintenance to the channel is still recommended to ensure the channel functions at capacity.
- The analysis showed that replacing the pipe at The Cut would result in increases in peak flows downstream of the area, with no reasonable option to mitigate these increases, either by upgrading the primary conveyance system or by creating some type of detention system.

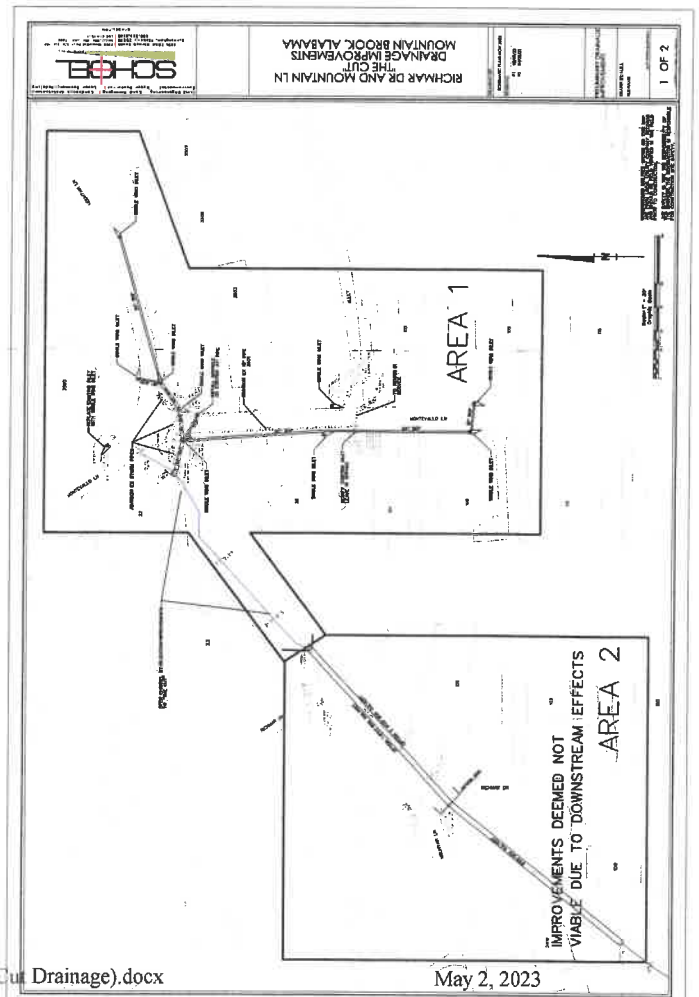
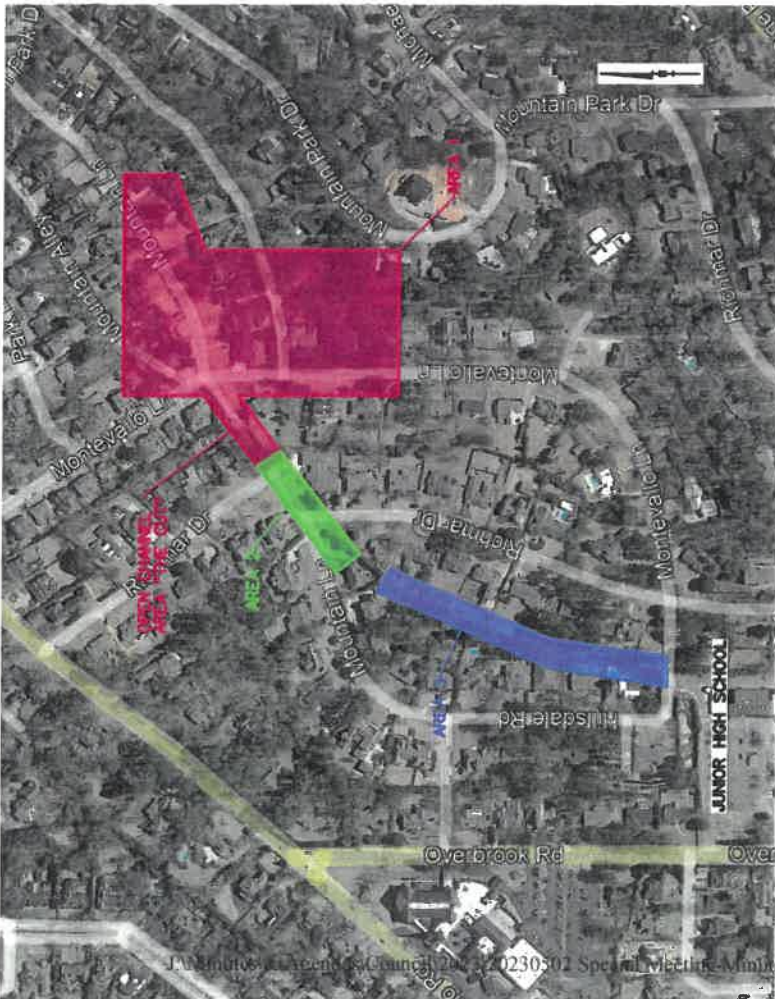
In consideration of these conditions, focus shifted with the goal to manage the potential flood water on Richmar Dr during a peak flood event.

Richmar Dr is lined with valley gutters intended to direct the stormwater south to Montevallo Ln. The lots on the west side of Richmar Dr generally sit at or below the elevation of the road (the east side lots are much higher than street elevation). In the front lawn of several of the lots, there is an elevated area, somewhat like a berm just behind the valley gutter. This increases the depth to which water must rise in the street before it enters the lot. However, near the upper end, a couple of lots do not contain this landscape feature. Also, most driveways contain driveway spanners located in the valley gutter which reduces the water carrying capacity of the gutter. This is especially problematic for the lots that do not contain the natural or built-in protective feature. During a heavy storm event, water can be ejected by the gutter, especially near the spanners, and allowed to flow down gradient into the lots.

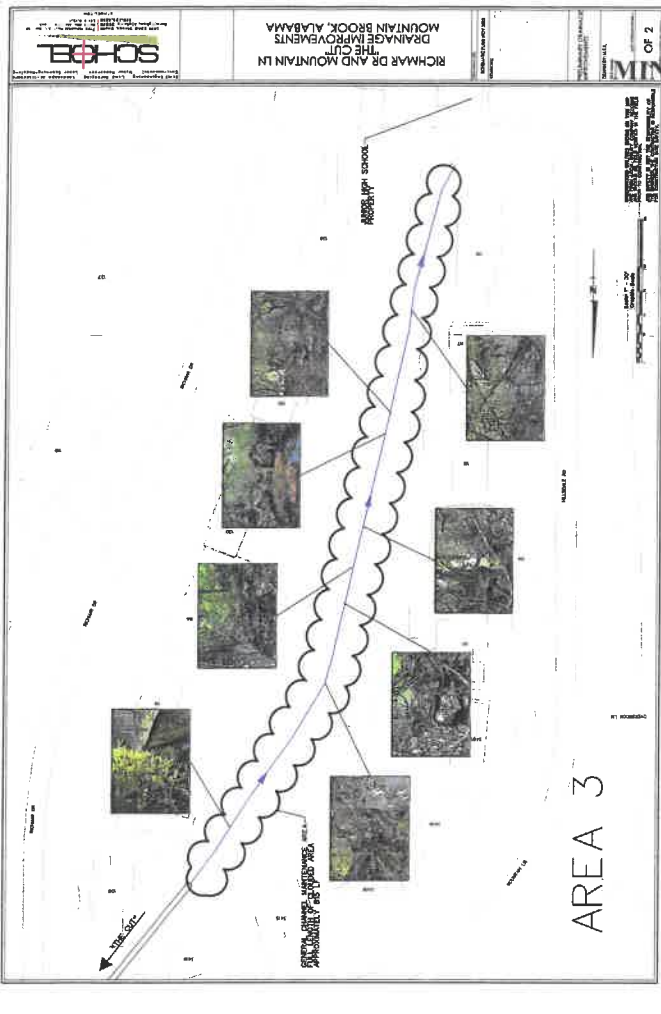
One solution is to elevate the area behind the curb in select areas, and for or a couple of the lots, this will include elevating a portion of the driveway.

An alternative option was considered to add a new inlet and pipe network along Richmar Dr that would capture and convey the floodwater south to Montevallo Ln. This would require a significant number of inlets and a long pipe network. The improvements to the lots mentioned previously (to some degree) would also be required, otherwise the potential would still exist for water to enter the lots. A pipe and inlet system like this would be a significant cost and the addition of such would primarily be intended to manage floodwater during peak events.

APPENDIX 1







**Recommended Changes to the City of Mountain Brook Detention Ordinance Executive Summary**

**Background**

The City of Mountain Brook has several watersheds or drainage basins with aging infrastructure that struggle to safely convey stormwater runoff during large rainfall events. Continued development pressure and additions to existing structures further tax these already strained stormwater drainage systems and exacerbate the drainage problems. As trees and grassed areas are covered by impermeable surfaces, such as rooftops, driveways, and parking lots, more of the rain becomes runoff and leaves the site at a faster rate. To mitigate the adverse effects of development to the existing storm drainage systems and downstream properties, a comprehensive review was conducted to identify and recommend new stormwater regulations.

**Recommended Modifications to the Detention Ordinance**

Watersheds determined to have existing stormwater infrastructure problems and/or subject to redevelopment pressure are deemed critical watersheds or *critical basins*. The proposed regulations will require a site-specific stormwater design for the proposed development that will manage increases in both stormwater runoff rate and volume to pre-development runoff rate and volume for specified design storm events. As a result, post-construction hydrology should mimic pre-development hydrology within the critical basin.

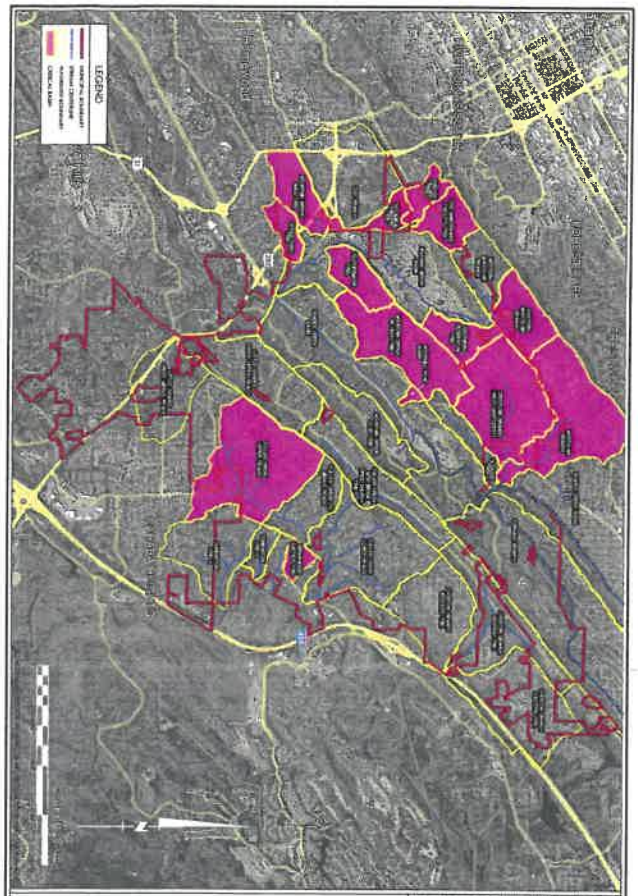
Specifically, development or redevelopment in critical basins are required to manage the runoff volume from the more frequent 1.1-inch rainfall event as well as ensure post-development peak runoff rates shall be less than or equal to pre-development values for the 2-year through the 100-year, 24-hour rainfall events. The runoff volume from the 1.1-inch rainfall event is termed the *Water Quality Volume (WQv)* and on average 85% of the rainfall events that occur in a given year are 1.1 inches or less. The WQv from the additional impervious area (or an equivalent area of existing impervious area) must be controlled onsite and infiltrated or managed with extended detention. For existing properties that exceed the maximum impervious area (maximum building area plus an additional (5) percent of the parcel area), any new development or improvement on the property will require a stormwater management design to mitigate the entire impervious area that is above the amount maximum allowable.

The stormwater management design shall be performed by a registered architect, landscape architect, or engineer. A written analysis or drainage report supported with design calculations shall be submitted along with plans and details to verify the adequacy of the stormwater management design for the property.

APPENDIX I

Table 1 – Critical Basin Summary

Watershed	Subbasin	Development Pressure	Infrastructure Problems	Severity	Critical Basin (Y/N)
Shades Creek	Furnace Branch	Average	Average	Low	N
	Crestline Branch (West Montcrest)	High	High	High	Y
	Glencoe Trib	Low	Low	Low	N
	Montclair Branch	High	High	High	Y
	Mountain Brook Club Trib	Average	Average	Low	N
	Mountain Brook Jr High Trib	High	High	High	Y
	Woodhill Road	Low	High	High	Y
Watkins Brook (Shades Creek)	Western Montclair Branch	Average	Average	Low	N
	Eastern Montclair Branch	Low	Average	High	Y
	Southern Residential Trib	High	High	High	Y
	CCB Maintenance Facility Trib	Average	High	High	Y
	English Village Trib	Average	High	High	Y
	Botanical Gardens Trib	Average	High	High	Y
	Heathermoor Trib	High	High	High	Y
	Mountain Brook Mall Trib	High	High	High	Y
	Office Park Trib	High	High	High	Y
Cahaba River	Fuller Creek Upper Reach	Average	High	High	Y
	Fuller Creek Middle Reach	Average	Low	Low	N
	Mt. Brook Presb Trib	Average	Low	Low	N
	Fuller Creek Lower Reach	Average	Low	Low	N
	Overton Branch Eastern Trib	Low	Low	Low	N
	Overton Branch Central Trib	Low	Low	Low	N
	Overton Branch Western Trib	Low	Low	Low	N
	Dunbarton Trib 1	Low	Low	Low	N
	Dunbarton Trib 2	Low	Low	Low	N
	Brookwood Baptist Trib	Low	High	High	Y
Little Shades Creek Basin (Cahaba River)	Little Shades Creek Upper Reach	Average	Low	Low	N
	Little Shades Creek Middle Reach	Average	Low	Low	N



CRITICAL BASINS EXHIBIT MOUNTAIN BROOK, ALABAMA



Summary: Homeowners on Richmar Drive and Mountain Lane have experienced severe flooding events and request that the City Council commission a study of potential storm water infrastructure improvements to address recurring flooding issues.

- Background
  - o In 2021, the City engaged Schoel Engineering to complete a study in connection with improvements needed at MBJH to prevent another flooding event like the one experienced on May 4, 2021. Schoel presented its findings along with three proposed options to correct the MBJH issues at the Council's December 13, 2021 meeting.
  - o During the December 13, 2021 meeting, Council members noted that it is important to take into consideration the potential impact of the three options on residents and organizations downstream from MBJH. During subsequent Council meetings, Schoel was engaged to study such downstream impacts.
  - o Schoel delivered its findings and suggestions regarding downstream impacts to the Council on May 9, 2022. At the same meeting, Schoel provided its recommendation regarding the three options first introduced during the December 13, 2021 Council meeting.
  - o Schoel recommended an option that primarily includes the expansion of the MBHS retention pond by approximately 20%, the installation of a larger box culvert under Hillsdale Road, and the construction of a 42" relief culvert running behind MBHS and under the sports fields. An alternate option presented to the Council included the construction of an additional retention pond on the Hillsdale property purchased by the City in 2021.
- Many residents on Richmar Drive and Mountain Lane experienced flooding and costly property damage to the interior and exterior of their homes during the flash flooding events that took place on May 4, 2021 and June 8, 2022.
  - o Multiple other events have come close to creating similar impacts.
  - o The flooding is attributable to inadequate storm-water infrastructure.
  - o The flooding results in severe property damage and health and safety hazards for residents in the area.
  - o Significant upstream construction activity and residential development over the years has directly contributed to the flooding risks.
    - Larger driveways
    - Bigger roofs

- The residents of these streets have invested significant amounts of money protecting their properties from flooding through the installation of driveway improvements, landscaping, and drainage on their own properties
  - o We are out of options. The flooding results from the inadequate storm water infrastructure, not water that falls on our properties.
- The City's own external engineers have described the culverts at the Cut as inadequate and too small for the volume of water in a meeting with Richmar Drive residents shortly following the June 8, 2022 flood event.
- The City has planned for large investments at MBJH and adjacent to Pine Crest Road, but has not considered or addressed the failures of storm water infrastructure upstream from the MBJH retention pond.
  - o The residents of this area are concerned that all of the studies completed to date, and recommendations resulting from those studies, have not taken into account the volume of water that is forced down Richmar Drive when the ditch at the Cut overtops Richmar Drive. Those studies were completed before the residents contacted the City Manager regarding the flooding issues at the Cut. The options considered by the City to address the MBJH issues don't appear to take into account the volume of surface water that travels down Richmar Drive into the MBJH area during one of these events.
  - o The residents of this area are advocating for a comprehensive plan that will address the increasing volume of water that is currently entering the neighborhood upstream of the MBJH retention pond from higher elevation areas and causing flooding and significant property damage. We do not live in a flood plain, yet our properties continue to flood due to an inadequate storm water system.
- We request the City immediately commission a comprehensive engineering study to examine options for improving the storm water drainage infrastructure upstream of the MBJH retention pond in conjunction with the improvements planned for MBJH and specifically at the Richmar Drive /Mountain Lane Cut.

- Piping gutters underground and extending them to the curb
- New home construction
- o This activity causes water to run off more quickly than the former lawns and smaller houses that occupied the uphill neighborhoods, contributing to much more rapidly rising waters in a flash flood event.
- o The City is addressing flooding impacts to MBJH and downstream organizations and residents but thus far hasn't considered or addressed the flooding in the Richmar Drive /Mountain Lane area.
- Significant flooding events are increasingly common, resulting from flash floods, when thunderstorms create heavy rain in a short period of time.
  - o The drainage ditch in the walkthrough area connecting Mountain Lane to Richmar Drive (the "Cut") is consistently overwhelmed by the amount of water entering from Mountain Lane and both directions of Montevallo Lane on the surface and through both: 1. the culvert running under Montevallo Lane and 2. the drainage pipe originating uphill near a power substation located on an alley off of Montevallo Lane (See Exhibit A).
  - o When this happens, the entire Cut area floods because the culvert running under Richmar is not large enough to carry sufficient water from the Cut to the ditch running down to the MBJH retention pond to keep the Cut from flooding. Likewise, the ditch behind the houses on Mountain Lane overflows into back yards because water can't flow downstream into the Cut due to the bottleneck at the culvert running under Montevallo Lane.
  - o On May 4, 2021 and June 8, 2022, flood waters overtopped Richmar Drive and then flowed south on Richmar Drive all the way down to MBJH. On May 4, 2021, Richmar Drive was under approximately a foot of water (See related video) resulting in heavy flooding in residents' yards, finished basements and garages. Likewise, the June 8, 2022 event caused similar damage to residents' homes due to flooding of Richmar Drive. Impacts include flooded garages, basements, generators, crawl spaces, vehicles, washed out landscaping, and sewage backups.
  - o There have been a number of recent instances when the Cut has almost overtopped Richmar Drive. This is a fairly regular occurrence. Any considerable rainfall causes the ditch in the Cut to breach its banks and flood the adjoining properties (See Figure 3).
- During these flood events, the culverts at the Cut become severe safety hazards, with giant "whirlpools" descending into narrow culverts that could easily result in death for anyone who falls into the water near the culverts.
  - o The Cut serves as a walking path for children and adults throughout the neighborhood.
  - o Neighborhood children use the Cut to reach both Crestline Elementary and MBJH during the school year.
  - o Repetitive flooding carries trash and waste into the ditch in the Cut.

APPENDIX 2

Exhibit A  
 -Sources of Surface Water [Blue Box]  
 -Sources of Drainage Water Carried by the City System [Green Box]



Figure 1. The Cut (June 23, 2022)



Figure 2. The Cut overtopping Richmar Drive (May 4, 2021)



Figure 3. The Cut (March 16, 2022). Water in the ditch in the Cut frequently reaches this level during non-flash flooding rainfalls (ignore the yellow circle)



APPENDIX 2

Figure 4. The Cut (June 23, 2022)



Figure 6. The Cut (June 23, 2022)



Figure 5. The Cut (June 8, 2022)



Figure 7. The Cut (June 8, 2022)



Figure 8. Richmar Drive Facing West at the Cut. All of this water overflowed from the ditch in the Cut and traveled down Richmar Drive to MBJH. (May 4, 2021).



Figure 9. Residence adjacent to the Cut (May 4, 2021).



Figure 10. Residence adjacent to the Cut (May 4, 2021)



APPENDIX 2

Figure 11. Residence adjacent to the Cut looking out at the east end of the Cut (May 4, 2021). Note the amount of surface water traveling towards the Cut: 1. down Montevallo Lane from both directions and 2. down Mountain Lane. |



Figure 12. The east end of the Cut (May 4, 2021). Note that the water in the ditch is above street level.



Figure 13. The east end of the Cut (May 4, 2021). Note the volume of water that moved those railroad ties.



Figure 14. East end of the Cut looking up Montevallo Lane (May 4, 2021). Note the amount of surface water traveling down Montevallo Lane to the Cut.



APPENDIX 2